60 calculates the position pressed by the user by calculating the position where these surface acoustic waves Wvx and Wvy are attenuated.

FIG. **5** is a graph showing one example of the envelope waveform of a detected surface acoustic wave.

In FIG. **5**, the horizontal axis shows time, and the vertical axis shows a schematic view of the strength of the surface acoustic waves. In what follows, a description is given regarding the case where the surface acoustic wave Wvx is transmitted from the X transmitter **51** over the surface of the second touch panel substrate **14** as the transmission signal. The surface acoustic wave Wvx transmitted from the X transmitter **51** passes through reflection arrays **55** and **57**, and is detected by the X receiver **52**. At this time, the respective reflection elements of the reflection arrays **55** and **57** establish a set of multiple paths of different length. The surface acoustic wave Wvx reflected by the respective reflection elements which are continuous in the reflection arrays **55** and **57** gradually transits the lengthening path, and arrives at the X receiver **52**. As shown in FIG. **5**, compared to the transmission signal, the waveform of the reception signal detected by the X receiver **52** is a trapezoidal waveform whose extent grows over time.

When the user presses a certain specific place on the coordinate input face, the amplitude of the surface acoustic wave Wvx which transits that part is attenuated. As shown in FIG. **5**, a signal drop-off occurs in the envelope waveform of the surface acoustic wave Wvx due to the pressing. By measuring the time Tg from detection of the reception signal until occurrence of signal drop-off due to this pressing, it is possible to calculate the attenuation position which is the position where the surface acoustic wave Wvx is attenuated. As a result, it is possible to identify the X coordinate of the pressed site. In the case also where the Y coordinate of the pressed site is identified, the signal drop-off due to pressing shown in FIG. **5** occurs in the envelope waveform of the surface acoustic wave Wvy. In this case, as well, by measuring the time from detection of the reception signal until occurrence of signal drop-off due to this pressing, it is possible to calculate the attenuation position which is the position where the surface acoustic wave Wvy is attenuated, and it is possible to identify the Y coordinate of the pressed site. The controller **60** is programmed to recognize an attenuation factor value higher than the threshold value of the reception strength attenuation factor of noise as attenuation due to pressing by the user. The controller **60** is able to calculate the X coordinate and Y coordinate of the position pressed by the user based on the surface acoustic wave Wvx detected by the X receiver **52** and the surface acoustic wave Wvy detected by the Y receiver **53**.

In the present embodiment, the first touch panel substrate **11** and the resin film **26** formed on the inner face **11***a* bend toward the second touch panel substrate **14** due to the pressing of the input face of the first touch panel substrate **11** of the touch panel **50**. The bent part of the resin film **26** contacts the second touch panel substrate **14**. The stress due to the pressing in the substrate direction is absorbed by the resin film **26** which has a low elastic modulus. The bending of the resin film **26** expands the area of the contact portion of the resin film **26** and the second touch panel substrate **14**. The surface waves propagated over the inner face **14***a* of the second touch panel substrate **14** are blocked by the contact portion of the resin film **26** and the second touch panel substrate **14**, and are adequately changed (attenuated) in this contact portion. The position detection means is able to detect the pressed position with a high degree of accuracy based on the position where the surface waves are changed.

Moreover, in this embodiment, the surface acoustic waves are generated on the inner face **14***a* of the second touch panel substrate **14** (between the first touch panel substrate **11** and the second touch panel substrate **14**), and are propagated over this inner face **14***a*. As the inner face **14***a* of the second touch panel substrate **14** where the surface waves are propagated is not exposed to the outside, it is possible to prevent foreign matter, impurities and the like from adhering to the inner face **14***a*. Furthermore, it is possible to prevent changes in the surface waves due to the adhesion of foreign matter, impurities and the like to the face of the second touch panel substrate **14** where the surface waves are formed. As a result, malfunctions of the liquid crystal display device **100** can be prevented.

Second Embodiment

Next, a second embodiment is described with reference to drawings.

In the foregoing first embodiment, the touch panel is configured from the pairing of a first touch panel substrate and a second touch panel substrate. In contrast, the present embodiment differs in that the touch panel is configured from a single thin-plate substrate. As the remaining basic configuration of the liquid crystal display device is identical to that of the aforementioned first embodiment, the same code numbers are given to shared components, and detailed description thereof is omitted.

FIG. **6** is a sectional view showing the schematic configuration of the liquid crystal display device **100** pertaining to the present embodiment.

As shown in FIG. **6**, a thin-plate substrate **11** (touch panel substrate) is arranged on the outer face **2***a* side of the color filter substrate **2** of the liquid crystal display panel **30** (the face of the color filter substrate **2** which is opposite the liquid crystal layer **4** side) with the opening of a fixed interstice via spacers.

The resin film **26** is formed over the entire surface of the inner face **11***a* of the thin-plate substrate **11** (the face of the thin-plate substrate **11** which is opposite the color filter substrate **2**). In the present embodiment, the attenuation factor of the resin film **26** is higher than the reception strength attenuation factor of surface acoustic waves due to noise, and the Young's modulus of the resin film **26** is lower than that of the thin-plate substrate **11** and upper polarization plate **15**. As the resin film **26**, one may use, for example, polyethylene.

Transmitters **54** (**51**) that transmit surface acoustic waves and receivers **53** (**52**) that receive the transmitted surface acoustic waves are provided on the outer face **2***a* of the color filter substrate **2**. The surface acoustic waves are generated on the outer face **2***a* of the color filter substrate **2**.

In the present embodiment, as the resin film **26** is provided on the inner face of thin-plate substrate **11** of the touch panel **50**, it is possible to obtain the same effects as the aforementioned first embodiment.

Third Embodiment

Next, the present embodiment is described with reference to drawings.

In the foregoing first embodiment, the input part pressed by the finger of the user was configured from a touch panel substrate composed of glass. In contrast, the present embodiment differs in that the input part pressed by the finger of the user is configured from resin film and a polarization plate. As the remaining basic configuration of the liquid crystal display device is identical to that of the aforementioned first embodi-